
NEUTRON DATA MEASUREMENTS FOR ENERGY APPLICATIONS AND NUCLEAR WASTE TRANSMUTATION AT JRC-IRMM.

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Studies in nuclear energy and transmutation of radioactive waste require neutron data for conceptual and performance studies, to determine the viability of advanced ideas such as an Accelerator Driven System and to fix the safety margins of any new concepts. IRMM's neutron data measurement program addresses data needs associated with Accelerator Driven Systems, management of radioactive waste, the thorium fuel cycle, high temperature reactors and safety issues of conventional reactors¹. Ongoing and recently completed activities include capture and total cross section measurements for $^{127,129}\text{I}$, ^{206}Pb , ^{232}Th , precision total cross section measurements for $^{240,242}\text{Pu}$, inelastic scattering measurements for ^{52}Cr , ^{58}Ni , ^{209}Bi and ^{207}Pb , (n,2n) measurements for ^{207}Pb , and (n,xp), (n,x α) and (n,xn) cross section measurements with the activation technique. Capture, total and inelastic cross section measurements make use of the pulsed white neutron source Gelina, whereas activation cross sections are determined at the Van de Graaff laboratory. An overview will be given of the above mentioned activities and an outlook will be provided for the measurement foreseen for the near future. The latter include determinations of the $^{209}\text{Bi}(\text{n},\gamma)^{210\text{m},\text{g}}\text{Bi}$ and $^{241}\text{Am}(\text{n},\gamma)^{242\text{m},\text{g}}\text{Am}$ and additional (n,2n γ) and (n,n' γ) reaction cross sections determinations at Gelina or the VdG by use of HPGe detectors with acquisition systems based on fast digitizers

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